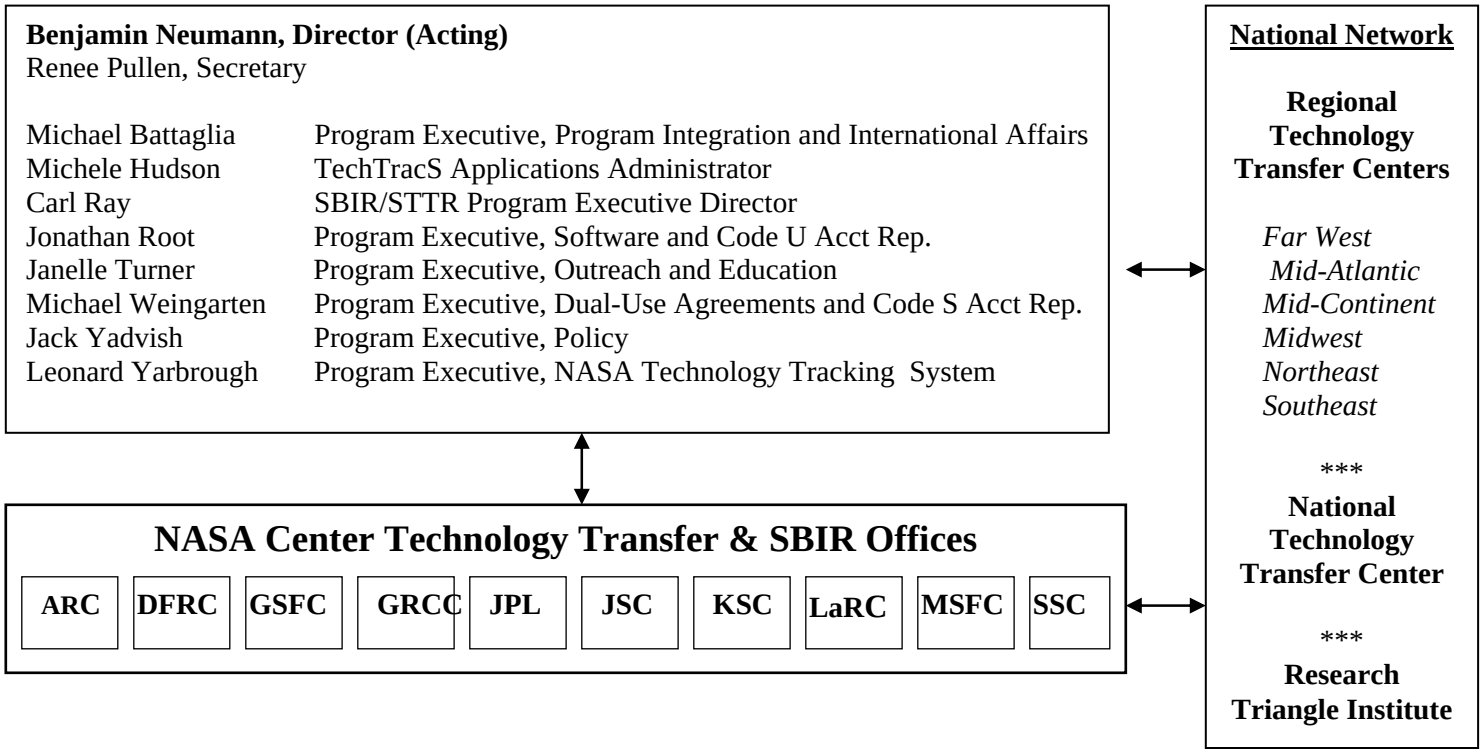
## 1.0 Division Description

The Innovative Technology Transfer Partnerships (ITTP) Division manages an Enterprise theme within the Aerospace Technology Enterprise. It seeks needed technologies for Agency missions and disperses NASA developed technologies into the Nation's economic enterprises. ITTP canvasses U.S. industry, other federal agencies, and academia, for technological solutions sought by NASA Enterprises for meeting their mission needs. As an integral part of its mission, ITTP acquires and transfers NASA Intellectual Property to U.S. industry, other federal agencies and academia for the purpose of strengthening the U.S. economy and for improving the quality of life for its citizens. The theme is also responsible for the management of the Agency's Small Business Innovation Research and the Small Business Technology Transfer Programs (SBIR/STTR), which are tasked with tapping into the innovative and entrepreneurial talents of the Nation's small business communities for solutions to critical Agency technological challenges.

The ITTP theme utilizes both civil servant specialists at NASA Centers and external agents under contract to NASA Centers for seeking critical technologies from the private sector which can meet Enterprise mission needs (infusion) and for transferring NASA developed technologies into the private sector (diffusion).

All ten NASA Centers and a National Network of technology specialists under contract to the Centers participate in the fulfillment of this theme. ITTP is funded and managed through NASA Headquarters and its programs are orchestrated through the Center's ITTP Offices, in response to the needs of the Agency's Enterprise programs and projects.

### ITTP Division Organization Chart



## 2.0 Division Purpose

The Innovative Technology Transfer Partnerships (ITTP) Division serves all NASA Enterprises by planning, executing, and overseeing technology development partnerships in support of NASA missions, the transfer of NASA developed technology to U.S. industry and academia, support for NASA educational initiatives and the continuing management of NASA's Small Business Innovation Research and Small Business Technology Transfer Research programs.

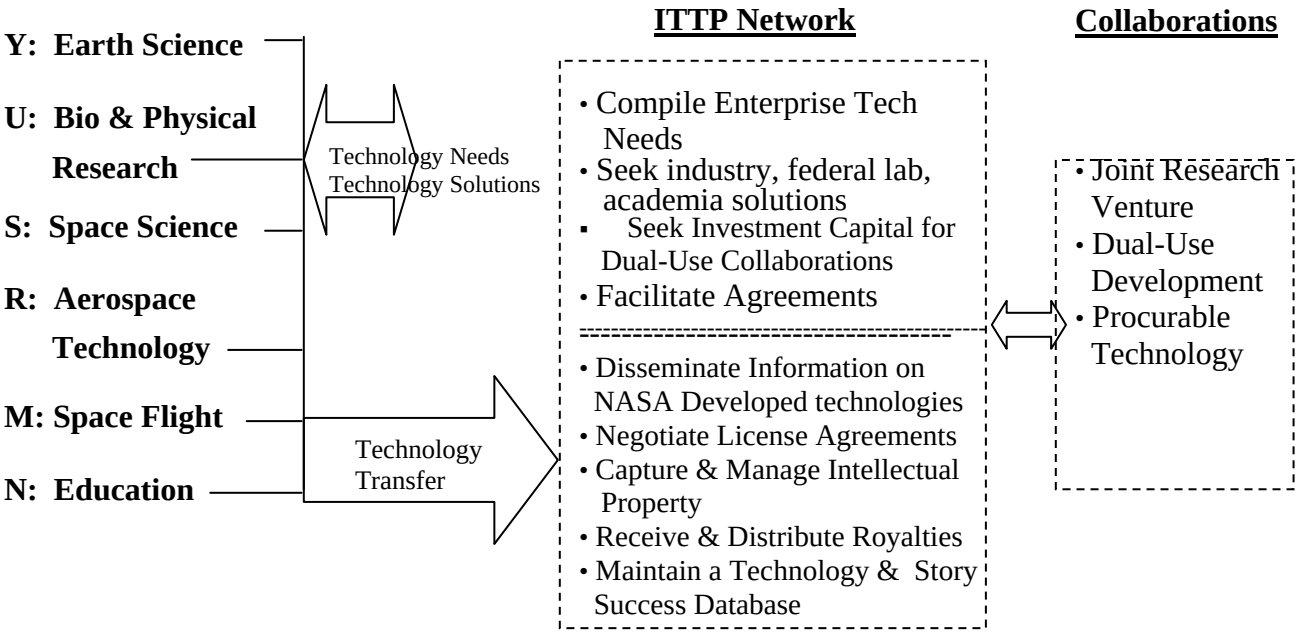
Under this ITTP Theme, NASA seeks to reduce Enterprise technology development costs through collaborations with the private sector (infusion), improve the nation's economic strength and quality of life through the licensing of NASA developed technologies for commercialization purposes (diffusion), and the capture and management of NASA's intellectual property. Infusion relies upon joint ventures and agreements with industrial partners and investors, and seeks to leverage limited NASA program funds for technology development. Diffusion relies upon intimate knowledge of NASA innovations and their applicability and adaptation to a variety of commercial applications. Management of NASA's intellectual property consists of selective dissemination of information on NASA inventions, evaluating these inventions to identify candidates for patent and licensing opportunities, assessing New Technology Reports (NTRs) resulting from funding agreements, receiving and distributing royalties to NASA inventors, and maintaining a database on all aspects of NASA's intellectual property and NASA technology innovation success stories. The SBIR/STTR Programs are, by their very nature, focused upon technology infusion in support of NASA's critical technology needs.

## 3.0 Division Processes

There are six principal processes being undertaken by the ITTP program:

- Providing support to each NASA Enterprise by seeking technological solutions in the commercial sector, other federal laboratories, and the academic community to meet a NASA mission program need or to formalize a joint agreement for dual-use technology development between NASA, a private sector partner and an investment entity.
- Transferring NASA developed technologies to the U.S. private sector, other federal laboratories, and the academic community for economic benefit, security to the nation, or improving the quality of life for its citizens.
- Managing the SBIR/STTR Programs so as to seek Enterprise technological solutions from the Nation's small business communities, a known reservoir of innovation and technological development.
- Knowledge Management of NASA innovations and societal benefits, which includes the collection and dissemination of knowledge through publications such as **SPINOFF, INNOVATION,** and **NASA TECHBRIEFS**, as well as assisting in developing press releases, feature articles in leading technology journals, and responding to inquiries from the Agency's public and legislative affairs offices.
- Maintaining NASA's Intellectual Property (IP) by capturing and managing new technology disclosures, patent and inventions, other forms of IP, and overseeing partnerships from initiation through delivery of desired technologies.
- Training and Education activities which ensure that assigned personnel are always at the leading edge of their respective disciplines which ensure that the technology transfer activities are diligently and effectively pursued.

Innovative Technology Transfer Partnerships
Bridging NASA's Needs with Commercial Industry Solutions




### 3.1 Enterprise Support

The purpose of the ITTP theme is to facilitate, at the earliest opportunity, NASA's access and exploitation of existing, available technologies developed by U.S. private and public entities, or the dual use development of NASA mission technologies through partnerships with U.S. industry, academia, or other government agencies.

Implementing Processes:

- Establish relationships with NASA Enterprises and Field Center program and project management personnel for the purposes of identifying NASA mission technology needs and facilitating collaborations for meeting those needs.
- Identify technologies developed by industry, academia, and other government agencies that may meet NASA mission needs, and nurture possibilities for, and progress toward, related collaborations.
- Engage industry for the purposes of inviting and nurturing interest in partnerships for joint development of dual use technology, as well as to establish relationships leading to possible future opportunities for transferring NASA sponsored technology.
- Encourage the introduction of private risk capital to help support those NASA business incubator firms that are commercially applying NASA sponsored technology that have both commercial and NASA mission use.

- Identify opportunities to match NASA mission technology needs with U.S. non-aerospace industrial and financial sector capabilities and interests regarding dual use development of NASA mission technology.
- Through the SBIR/STTR Programs, identify opportunities to match NASA mission technology needs with the U.S. industrial and financial sector capabilities and interests regarding dual use development of NASA mission technology.
- Particularly engage innovators and investors that have not traditionally done business with NASA for the purposes of inviting and nurturing interest in dual-use technology development partnerships. The Enterprise Engine initiative, in particular, has as its purpose, the establishment of partnerships with private sector non-aerospace innovators and investors to sponsor dual-use technologies to meet NASA's future mission and technology needs.
- Implement the ITTP theme's program elements via a geographic network of NASA Field Center ITTP and SBIR/STTR offices, technology transfer agents, and service support contractors.
- Use Space Act Awards by the Inventions and Contributions Board to incentivize the utilization of NASA's technology developments by NASA as well as by non-NASA Partners.

### 3.2 Intellectual Property Capture, Management, and Dissemination

The purpose of this program element is to systematically identify, compile, assess, monitor, and transfer innovative technologies developed under contracts, grants, or other agreements with NASA, or exclusively by NASA civil servants, to increase utilization of NASA sponsored technology by all NASA Enterprises, and to enable NASA to meet its ~~statutory~~ obligations to determine and protect NASA's rights in technology and to disseminate that technology for commercial application.

Implementing Processes:

- Establish and implement a highly disciplined and efficient information technology system for capture, assessment, and management of NASA intellectual property and other NASA sponsored technology.
- Facilitate training of NASA technologists, procurement personnel, project and program managers to make them aware, and facilitate their compliance, regarding NASA's statutory obligations to report new technologies and their individual responsibilities under NPG 7120.5, as well as to assure the establishment of a complete inventory of NASA technology that would be available for the fullest Agency-wide utilization.
- Engage industry for the purposes of inviting and nurturing interest in commercial application of NASA sponsored technology, as well as to establish relationships leading to possible future collaborations for dual use technology development.
- Facilitate brokering of licensing and other agreements with U.S. private entities for commercial application and quality of life benefits of NASA sponsored technology.
- Implement this ITTP program element via a geographic network of NASA Field Center ITTP offices, technology transfer agents, and service support contractors.
- Utilize other programs such as Space Act Awards of the Inventions and Contributions Board as incentives to maximize the identification and collection of all NASA developed technologies.

### 3.3 SBIR/STTR Programs

The purpose of these legislatively mandated programs is to provide the small business sector with the opportunity to develop innovative technology for meeting NASA mission needs, and to encourage the commercial application of that technology.

Implementing Processes:

- Closely align technologies solicited by NASA under the SBIR and STTR programs with the reasonably nearer term technology needs of NASA Enterprises.
- Evaluate SBIR and STTR proposals in accordance with rigorous, published criteria designed to reveal the commercial purpose and commercial preparedness of proposing entities regarding the technology to be developed.
- Administrate the SBIR and STTR programs utilizing an end-to-end electronic processing system for distribution of solicitations, as well as submission and evaluation of proposals, for the purposes of expediting the provision of competitive research contracts to U.S. owned small businesses.

### 3.4 Knowledge Management of NASA Innovations and Societal Benefits

The purpose of Knowledge Management is to communicate knowledge about innovative NASA technologies and how they benefit the Nation and, indeed, all mankind, as well as the benefits of NASA's full utilization of the national technology inventory base.

Implementing Processes:

- Maintain publicly accessible website information regarding commercial applications and quality of life benefits of NASA sponsored technology, as well as successful infusion of technology into NASA missions from the national technology inventory base.
- Also account for and make public ITTP program results by sponsoring publications such as *Innovation*, *Spin-off*, and *TechBriefs* magazines.
- Maintain the Agency-wide technology transfer database, NASATechTracS, which provides public access through the World Wide Web to more than 18,000 available technologies funded by NASA.
- Utilize Space Act Awards by the Inventions and Contributions Board to incentivize and recognize NASA and contractor inventors who create innovative technology.
- Exercise program control via maintenance of management performance metrics and periodic reports, having formats prescribed by the OMB, the Congress, and the Aerospace Enterprise.

### 3.5 Intellectual Property Management

The purpose of Intellectual Property Management is to systematically identify, compile, assess, monitor, and transfer innovative technologies developed under contracts, grants, or other agreements with NASA, or exclusively by NASA civil servants, to increase utilization of NASA sponsored technology by all NASA Enterprises, and to enable NASA to meet its statutory obligations to determine and protect NASA's rights in technology and to disseminate that technology for commercial application.

Implementing Processes:

- Establish and implement a highly disciplined and efficient information technology system (NASATechTracS) for capture, assessment, and management of NASA intellectual property and other NASA sponsored technology.
- Facilitate training of NASA technologists, procurement personnel, project and program managers to make them aware, and facilitate their compliance, regarding NASA's statutory obligations to report new technologies and their individual responsibilities under NPG 7120.5, as well as to assure the establishment of a complete inventory of NASA technology that would be available for the fullest Agency-wide utilization. o Engage industry for the purposes of inviting and nurturing interest in commercial application of NASA sponsored technology, as well as to establish relationships leading to possible future collaborations for dual use technology development.
- Facilitate brokering of licensing and other agreements with U.S. private entities for commercial application and quality of life benefits of NASA sponsored technology.
- Utilize other programs such as Space Act Awards of the Inventions and Contributions Board as incentives to maximize the identification and collection of all NASA developed technologies.

### 3.6 Training and Education

Recognizing that Agency employees require a variety of courses and instructional approaches (including classroom, web-based training and instructional videos) to become familiar with technology spin-in and spin-out processes, the ITTP Division offers training courses which will enable various disciplines within NASA to fulfill their job requirements and enable the Agency to achieve its technology spin-in and spin-out objectives.

Implementing Processes:

- The following instructional courses and videos are offered to NASA employees:

  - Technology transfer for NASA Program & Project Personnel. This course is offered under the sponsorship of the NASA Headquarters Academy for Program Project Leadership (APPL) supported by the NASA Office of Human Resources & Education.
  - Web based training on Intellectual property, technology reporting, and technology transfer for program and project personnel, and other courses as they become available.
  - Alternative information and training resources including:
    -- NASA ITTP and National Technology Transfer Center (NTTC) websites which provide a variety of information on NASA technology commercialization activities, and links to other relevant sites: The URLs for these sites are:
    NASA ITTP: http://www.nctn.hq.nasa.gov; NTTC: http://www.nttc.edu; Commercial Use of Space: http://commercial.nasa.gov.
  - A Web-Based Technology Commercialization Resource Guide, containing information pertaining to NASA and other federal laboratories: http://www.nttc.edu/training/guide.
  - Space Product Development program activities and accomplishments: http://commercial.nasa.gov/
  - An executive level video geared toward NASA management, program and project

managers, COTRs, and scientists and engineers. This six minute segment features some of the most successful NASA commercialized technologies and their impact, both internal and external to NASA.

- In addition to employee training, the ITTP Division sponsors an Entrepreneurial Technology Apprenticeship Program (ETAP) which serves talented minority college students by providing them with opportunities in technology management for the purpose of developing the next generation of technology for U.S. industry.

## 4.0 Division Metrics

A "core set" of metrics and trend indicators are utilized as key measures for judging the performance of the ITTP program. Metrics differ from "trend indicators" in that metrics can be quantified, assigned specific goals, measured, and a variance computed and analyzed. Trend indicators are performance items which get base lined and trended over time. These indicators do not have specific goals and thus no variances. Rather, the trend is analyzed to determine if it is moving in the right direction and at an acceptable rate.

Each NASA activity will be able to access its core set of metrics and trend indicators (as well as other status information) in NASATechTracS via a web portal called KIMS (Knowledge Integration & Management System). The metric and indicator data in KIMS is updated monthly.

Table 1 lists the core set of metrics with the other items being trend indicators. NASA submits two of these metrics as part of its annual Accountability Report in response to GPRA: (1) "technologies released to the public" metric is collected and reported in support of NASA's Communicate Knowledge (CK) process - one of the cross-cutting processes in NASA's Strategic Plan (2) The "partnership investment" metric is collected and reported in support of NASA's Provide Aerospace Products and Capabilities (PAPAC) process - the other major NASA cross-cutting process.

**Table 1. Listing of Metrics and Trend Indicators by Category**

| Category | Item | Metric or Trend Indicator |
|---|---|---|
| Commercial Potential | Number of Contracts/Grants/Agreements with Commercial Potential | Trend Indicator |
| | | |
| New Technologies | Total New Technology Portfolio | Trend Indicator |
| | New Technology Reports Submitted | Trend Indicator |
| | New Technologies Assessed for Commercial Potential | Trend Indicator |
| | New Technologies Available to U.S. Industry | **Metric** |
| | Number of Patents & Copyrights | **Metric** |
| | Number of Licenses Issued | **Metric** |
| | Royalties Received (year-to-date) | **Metric** |
| | | |
| Partnerships | Active Partnership Portfolio (year-to-date) | Trend Indicator |
| | Partnership Investment ($ and/or In-kind) | **Metric** |
| | Number of Technologies Infused into NASA Programs | **Metric** |
| | Value of Technologies Infused into NASA Programs | **Metric** |
| | | |
| Success Stories | Year-To Date Portfolio | Trend Indicator |
| | Total Current Portfolio | Trend Indicator |
| | | |
| SBIR/STTR Phase IIIs | Number of “Phase III” Procurements | **Metric** |
| | Solicitations and Awards of contracts on schedule. | **Metric** |
| | | |
| Knowledge Distribution | Meeting Scheduled Delivery Dates for pubs INNOVATION, SPINOFF, and NASA TechBriefs Magazines | **Metric** |
| | | |
| Economic Impacts | Under Study | Under Study |